3. Inside

Program Name: Inside.java   Input File: inside.dat

Your friend Edith has recently been taking part in geocaching, and has realized that some of her goals are actually on her property. The problem is that her property is irregularly shaped, so she needs your help figuring out if each location is on her property. You will be given a list of points in form "X Y", giving x and y coordinates that form the corners of a polygon. Each point will be connected to the points given immediately before and after it, with the first and last points also being connected. You will then be given a list of points, which for each one you will print "inside" or "outside" depending on if that point is inside or outside of the polygon.

Input
The first line will contain a single integer T, stating the number of test cases to follow. Each test case will start with two integers C and P that refer to the number of corners of the polygon and the number of queried points respectively. C lines will follow, each with two integers X and Y, and will form the vertices of the polygon. P lines will follow after this, each stating a point in the form X and Y (integers) that you must determine if it is inside or outside of the specified polygon. There will be no point on the boundary of the polygon.

Constraints
```
0 < T < 5
2 < C <= 10
0 < P <= 10
-100 < X < 100
-100 < Y < 100
```

Output
Your output should contain a list of answers each on its own line. Each answer is either "inside" or "outside" depending on whether the point is inside or outside of its corresponding polygon.

Example Input File
```
2
3 2
-1 -1
0 1
1 -1
0 0
1 1
4 3
-1 -1
-1 1
1 1
1 -1
0 0
1 2
-3 -3
```

Example Output to Screen
```
inside
outside
inside
outside
outside
```